

DRAGON USER

International edition

The independent Dragon magazine

75p US\$3.25 December 1984

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How to submit articles

The quality of the material we can publish in Dragon User each month will be a very great asset, depend on the quality of the documents that you can make with your Dragon. The Dragon computer was launched on the market with a powerful version of Basic but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should whenever possible be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article as a program, as printed text is easy. If you want to read your program submitted you must include a stamped addressed envelope.

Contents



Letters

Including the month information on mobile, all Dragons, an IT answer and how to become a program listing.

News

The latest on GEC's marketing plans and details of new peripherals and software on release.

Clubs

Local and national clubs are now providing an important service to Dragon users — Gordon Ross details the growing club network.

Dragonsoft

Dragon software seems to have made a comeback recently, our reviewers give the lowdown on what to expect.



Chip Shop

Keith and Steven Brain review two free codes that allow you to tune into the BBC's Chip Shop show.

Versatile Interlacing

Brian Gedge takes a look at a simple interface from MCU Electronics.

5 Snakes alive

Andrew Ward tells his snake on a pit eating during in our programs of the month.

Bookbytes

Our reviewers tell you which books that are most likely to suit your needs.

Dragon designs

David Sam gives you the information necessary to create good graphics and improve your programs.

Open file

Readers' programs this month include a screen editor and a Timesaver listing.

Tandy/Dragon conversions

Jason Nichols tells the Dragon and CoCo users used to represent Basic commands and shows how to play a tape on one mode when it is programmed for the other.

Adventure column

Mike Garfield continues his survey of the adventure genre.

Dragon Answers

Brian Gedge offers a range of advice including instructions on the Dragon's reset command and information on moving graphics pixel by pixel.

Competition corner

Brian Gedge provides the prizes to Gordon Lee if said back question.

Editorial

NINETEEN EIGHTY FOUR is a date that has been associated with catastrophe and terror ever since George Orwell wrote his chilling vision of the future in 1949. In the event of course 1984 turned out to be something of an anticlimax. My Big Brother is Just a Dream.

For the computer industry however 1984 still has a certain significance. The pundits who had been predicting a massive shake-out in the market drew some satisfaction from the disappearance of Tysons and Computers. Though this was balanced to some extent by the emergence of Amstrad.

The Japanese also made their long-awaited entrance into home computers with the much hoped 8085. But despite the Japanese domination of the hi-fi and electronics markets there are some doubts as to whether they will seriously take over the market. The 280 might be standard around which 8085 is based may be too old-fashioned when compared with the newer 16 bit offerings from Intel and at Dragon despite hefty cash machines failed to overcome its difficulties and overwhelming problems with the result that it was sold to Spanish company Barcelona Dragon software houses immediately started to convert their programs to other machines if they had not done so already.

Jack Traxler, the man who founded Commodore and built it up into a multi-million pound company resigned in a boardroom dispute. But he bounced back within months to buy troubled Alan from Warner. So 1984 has been a year of considerable change for the computer industry. It not quite the watershed envisaged by Orwell. What 1985 holds in store is difficult to predict other than that the market will become yet more competitive. To paraphrase an ancient Chinese proverb: We live in interesting times.

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Letters

This is the chance to air your views— send your tips, compliments and complaints to *Letters*.
Page, Dragon User, 12-13 Little Newmarket Street, London WC2E 8LD.

Sing Dragon . . .

If MAT's interest spans readers who wish to use their Dragon to control a musical keyboard that they can in fact do so with the recently received Cines MT 2000. This is one of a selection of mini-keyboards from Cines of costs £150 and links up to the Dragon 32 via keyboard as an accessory interface — the PA-1. This costs £30 and plugs into the Cinescans socket via a patch cable.

Using this system the computer can be used to control one of the eight preset voices, start or stop one of the six preset rhythms and can play up to eight notes — so the computer could be used as a sort of accompaniment to build up a melody or chord accompaniment which can be played whilst you pick out a lead.

Obviously, it does not have the facilities of the MIDI system and a synthesiser. However it does provide the Dragon with an excellent sound system at a reasonable price. The software must (at present) be in floppy disks, but there is not too much home programming effort involved. I find this system useful and am looking at plans for college use.

Which brings me on to ask if anyone could tell me the function of each pin on the Cinescans socket (Rings, Square and so on). This will form a major part of my project and I would be very grateful for any help received.

Raymond McKean
of Whitford Avenue
Highgate Road
Musbury Devon PL26 9PL

. . . sing

IN REPLY to the substantialist in Mr Wells and J.A. Gill in October's Letters Page for A to B converters. I would like to point out that Electronics/byte Technicals has been marketing a general purpose control interface for some months now.

The board which plugs into the computer port has both analogue (A to D and D to A converters) and digital input/output facilities (I/O), input interrupts and output options for the purpose of controlling variable and digital oscillators. The D to A converter has an 18V output voltage swing which should easily control a musical synthesiser. Software is

sent to match all a problem as the manual carefully explains the individual functions of components used in the interface and gives basic and advanced machine code examples for use.

The board has proved to be particularly popular with schools and colleges throughout the country and is used for numerous applications from robotics with artificial intelligence and speech recognition to controlling 50-ton pneumatic hammer recovery systems and laboratory robot arms.

Dr Mark Varley
Electronics/byte Technology
8 Avenue Road
Widol Derby
Liverpool L12 4NR

Secure program

FOR SOME time I have been trying to "secure" a program saving information from your magazine store in that to create the LUT (LUT) and break keys. I have even included a subprogram to add start on reset and have tried the run-error routine pointed in the magazine but this has the effect of leaving the machine rather than running it (but at least it prevents access to the program).

Here is a subprogram I use to read from the keyboard. It prints it and the break key successfully breaks the program.

```
10000 AS=INKEY: IF AS=
  THEN 10000
```

```
10001 IF AS=CHR$(13) THEN
  RETURN
```

```
10002 PRINT AS
```

```
10003 AS=AS+AS : GOTO 10000
```

```
10004 GOTO 10000
```

Using the RAL function to convert the string is a number of necessary for example

```
50 PRINT @ AS : ENTER GOTO
  N A M E R A 0 0 0 0 0
  10000 A=RAL (AS) AS=
  (AS) : GOTO 10000
```

```
60 PRINT @ AS : ENTER
  SECOND NUMBER: 00000
  10000 B=RAL (AS) AS=
```

Note the asterisk after the part doing to ensure that the key pressed is printed after the its control to enter. This should be omitted if the keypress is to be printed on the line below.

Using a similar subprogram (printing line 10002) is again an easy code to use the program is even to create keys so that only I can break the program. I think I have finally "secured" it.
Michael Owen
Garsington
Wiltshire

ITT answer

WITH REFERENCE to Gerald Woodman's letter (October, Dragon User) I too purchased the same model ITT Tasterbox and initially had the same problem.

I finally solved it by trial and error and using the pin connection diagrams provided with the TV and also Dragon Data. In formation for machine code users.

I have used a 5 pin DIN plug with 2 x twin card wires connected to the Dragon 3 monitor output, pins 3 and 4 for the video and the other 3 pins 1 and 2 for sound (2 being earth). These are connected to the TV as follows.

Video signal is the SO 230 BNC socket with the outer section as earth. The sound signal is taken in the Audio socket with the top pin to earth and the second wire connected to the lower Audio-Signal input.

The volume setting on the TV has to be set fairly high to obtain a control sound level.

John Nash
Stamford
Leicestershire

Jolly good news

FOLLOWING a recent article in your publication regarding the Videopack we have had a number of letters from Dragon Users asking where they can purchase the pack.

Unfortunately due to lack of dealer and distributor enquiries and support we will not be releasing this pack. However, as a special offer to our readers we would be quite happy for them to write to us for the individual games and instead of paying the normal £15.00 price from the retailer they can obtain four games for £14.95.

The games are:
Lagard: Pedro Gomez Gussak
B.C. 88

We are also about to release Amulet for the Dragon and we would include this game which will also retail for £15.00. The total for the five games will be £74.90. This means a saving of £2.00 on the five games.

Colin Ashby
Steve Jolly
104 New Broadbury
Basing
London W5 5AH

Across the Atlantic

I AM writing on behalf of Dragon users in the USA. The company the originally distributed the Dragon in America is no longer supporting the Dragon. There seems to be very little hardware or software available and as a dealer has driven me and my Dragon customers to a spot.

In looking through your magazine I see many sources for products, but almost all of them are not distributed in the United States. I would be most interested in hearing from any person who has a USA distributor or who will let me get details on shipping products to America.

Ray Sharp
Computer Corner
7044 R Solaire Avenue
Manson, WA 98842
USA

Software Top 10

- | | |
|---------------------------------------|-----------------|
| 1 (S) Chessback | Comix |
| 2 (S) Mystery of the Java Star | Warrior |
| 3 (S) Memory Horace | Melbourne House |
| 4 (S) Mr Dig | Microdeal |
| 5 (S) Coltback in Space | Microdeal |
| 6 (S) Kingspell | Byteard |
| 7 (S) Chuckin' Eggs | A & P |
| 8 (S) Dragon Chess | Osac |
| 9 (S) Ring of Darkness | Wintecsoft |
| 10 (S) Lightball | Microdeal |

Chart compiled by Publishers Software

GEC sells last stock



GEC HAS sold all of its remaining stock of Dragon products and has no immediate plans to penetrate the Dragon/Doris joint marketing venture of GEC Radio and Television, and that all of GEC's stocks of the Dragon 32 and 64 had been sold to an undisclosed buyer together with small quantities of single and double density disk drives. Delivery of the goods at a stock place shortly.

It is not known what price was paid for the goods nor what price the products will be sold for when they eventually reach retail outlets.

It now looks as if GEC's association with the home computer market is in doubt. Although the company is in contact with Eurohard SA, the Spanish manufacturer of

the Dragon, it has not yet come to any agreement over future marketing arrangements.

GEC has also shelved any immediate plans to manufacture an MSX computer. Doris confirmed that the company does not have a licence from Microsoft — the American licensors of the MSX standard.

One piece of good news, however, is that GEC is tentatively formulating plans to establish a Dragon repair and warranty service possibly in conjunction with Touchmaster — the company formed by ex-Dragon Doris directors Bruce Mason and Richard Widman.

The service is hoped will cover Dragons sold both before and after the crash of Dragon Data earlier this year.

Dragon modem



A FULL facility modem hardware-compatible with the Dragon has just been released by Unicom for £49.95 excluding VAT. The modem features auto dial, auto redial, auto answer, auto band rate scan, full duplex, half duplex, bulletin board facility and number memory store.

Lead times are 360-300

days and PC-1000. Unfortunately the company is not producing any software for the Dragon so users of the system would have to write their own or rely on existing software provided by Comwell Computers.

Comwell has just released a new modem software package which features 40 column

New releases

and 80 columns lighting bolts and ice pellets play a major part in some of the latest releases from Cable.

New from Cable Software in time for Christmas are three titles all running for £9.95 each. Fighting Fantasy is an arcade adventure with 35 screens which are in effect interconnected rooms. You move the character of a hero by use of the joystick. Each room has different guards and objects to be overcome.

The game can be played either as an arcade game or an adventure in order to reach the last screen—final planning and thought is needed according to Peter Philips of Cable Software.

You will need to guess a code in order to locate the keys needed to open subsequent doors. Also various weapons are necessary to overcome opponents. The weapons include spears, lightning bolts and victory apples. It is a very complex full colour animated machine code game which for any other reason would have been called a mega game, according to Peter.

Cable's other two releases are Hyperbolic — an arcade type game written in 100% pure machine code which is a sort of Lunar Jet Man with you flying about on a rocket launcher firing at other craft and an as yet untitled program involving two different screens with moving clouds and a mad woman called Edda. Written in machine code it also is a multi screen arcade game with full colour animation.

With every full price paid for

a title from Cable Software users are being offered a free game from the following Cable titles: Living Stone, Geography, Drones, Dragons near, Tides, Maze, Cave, Fighter, Baccarat, Dragon, Run, Jump, Invasion. Two full price games will get you two free games. Further details from Cable Software (P.O. Market) at 0502 201400.

Combin-Compulsories is a new name to Dragon owners, as releasing its first title for the Dragon called Screenshot. Featuring for £5.95 the game is based on Hans Christian Andersen's immortal story in which the boy Kay is imprisoned by the Snow Queen in her palace of ice. He cannot gain his freedom until he can slay out the word ETERNITY. Here six fragments taken from a lake of ice in the palace.

The game is a medium of educational and fun and is set for ages around seven and above. Further details from Combin Compulsories at 15 Darnley Close, Prestatyn, Gwynedd LL19 7TT.

Finally from Knight Software comes Yum-Yum. Thouser who 'yumped' his way to the top of each of Moon's towers making his way to the door avoiding monsters and hoping for a rescue with his darling Daisy and Tim Attack from Tudor Williams, a low resolution military graphics game with torpedoes, mine probes, zeppelins and jets.

Further details from Knight Software at 10a High Street, Essex, Chelmsford SS8 6UD and from Tudor Williams post box at 16 Summer Road, Cressing, West Midlands WR14 6PD.

screen display with upper and lower case characters. The program also enables the facility to take a printed copy of incoming data.

The inclusion of a print facility is to allow the Dragon to emulate a text terminal. By using the facilities of Eagle's the mailbox system operated by Cable and Wispax it is possible to send and receive international and national text messages at any time of the day or night. Further information from Comwell Computers at 6 Middle Row, Chipping Norton, Oxfordshire.



Maintenance guaranteed

YEARLY maintenance with repairs are being offered by two new firms in the computer industry.

Following the collapse of Dragon Data several months

ago many readers have experienced trouble in getting their Dragons repaired especially with many service agents reportedly having difficulties in obtaining spare

parts. Now Global Computers and the Micro Repair Club are offering repair-guarantee packages which users can subscribe to when their manuals mention provided warranty periods.

Global's John Kensington started this, their engineers "are trained up to mend home computers" and are offering a warranty for one year, which covers all electronic components within the computer including the cost of all labour charges. If necessary, the company will replace a computer if it can't repair it. Global charges this at a year for a machine that is up to 24 months old and £20 per year for a machine that is over 24 months old. However, models (1a) are over 24 months old to be sent to the company to ensure that they are in working condition.

The company will also repair items that are already faulty, but again these must be sent to the company as they are repaired and quotation can be obtained. For further details contact Global Computer Consultants at Charles House, Bridge Road, Bournemouth, Dorset BH2 9SD telephone 01-937 4418.

Micro Repair is offering a similar service for £24.95. Payment cost after the first year is £14.95. Though the company is offering a five year subscription for £57.95. The maintenance work will be done by Computerised Services part of the Thron SAS Information Technology Division.



Micro Repair also has a schools scheme whereby a school with more than one micro can join the club for a membership of £24.95 for the first micro and £19.95 each for all others. Further information about the warranty service can be obtained from Simon Jamson, Micro Repair Club, Seven Court, Mansel Road, Wimpole, London SW16 4AA, telephone 04-946 7777.



The SCF-800 printer is manufactured by Japanese firm Sharp. Models in the first colour printer market to meet the under £250 according to Asian design, technical division of Dragon — the UK distributors of the SCF-800. The printer has a standard Centronics interface and is also available to meet for compatibility with the Dragon, though not both have actually been made. There is also an RS-232C adaptor option. The printer has A4 paper handling capability and a 2.5mm paper roll option. The recommended retail price is £169 though at present it is selling at an introductory price of £179. For further details contact Dealer at Dragon House, County Road, Basingstoke, Hants RG24 0JX, telephone 0256-464137.

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A box of Dragonchess, a board game. The box is yellow and black, with a large illustration of a dragon on the front. The title "DRAGONCHESS" is printed at the top. The box is shown at an angle, with the side of the box also visible, which has the title "DRAGONCHESS" printed vertically.



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The craft is a light weight, low winged, single engined aeroplane, with a nose wheel which is both steerable and retractable.

Most instrument manoeuvres and procedures may be practised, as well as aerobatics which include, aileron rolls, spins, stalls and sustained inverted flight.

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 Apple Macintosh



Clubs

Send details of your club to Clubs page, Dragon User 12-13, Little
Newport Street, London WC2E 8JF.

Nationwide network

Glendon Ross details the growing U.S. groups, including the latest national Dragon club

A third national Dragon User group has been set up following the success of Dragon Data, Dragon Dungeon and Compuhouse UK. Namaste Games and Compuhouse, which will later own the rights to the franchise.

The club has an ongoing name bid with 230 members and will a dozen inquiries per week it is well on its way to becoming established. Negotiations are currently being made with a number of software firms regarding the possibility of the group offering discounted software. At present there is a 35 per cent discount on items produced by Simp Software and it is hoped that both Microsoft and Tauschmaster will be making their range of software available to group members at a 15 per cent saving.

The group is also consulting with Coreword Computers about the possibility of obtaining the 2 000 list of members that Coreword obtained from Computahouse UK. Below we publish an extract from the editorial of the computer first newsletter.

The Users group is being formed due to the demise of both Dragon Fleet and Dragon Desk. Our beloved sea of links is now in the hands of the perfidious Spanish; and it was I thought that some sort of avenue needed to promote the interests and exchange information. Which brings me to the main message of this editorial: your club — and especially a national one — can only survive with a large and active membership. **THIS MEANS YOU**, so if you have any problems, opinions, comments or contributions write in, also if you know anyone with a Dragon persuade them to join up, in short go forth and multiply.

Subscriptions for this year is set at \$7.50. This may seem a bit steep, but with the club relatively small, costs are high. However, next year we hope to be able to pass the costs.

There has (just) some informal expression in networking either by modem or RTTY if anyone has wants on this or already possesses the equipment, let me know and I'll pass it on. That's enough from me at least wishing this hat, so remember from Harvard and a down to you.

Further details about the clubs can be obtained by sending an SAE or postage to the following: Jeremy Hayman (news@star.com), 17 Oxford Road, Frinton-on-Sea, Essex CO12 6HJ; Paul Greisd (joh@charman), 8 Nevada Road, Whittington, Surrey RH11 1JX; 13 Ray Vale Road, Colwyn Bay, Gwynedd LL29 5DQ.

Dragon clubnet

Restroomware Lightline Ballistic Composite
Clue Tidewater Leisure Center - Lehigh
Massachusetts Small shop - many are Friday at per day
10.00 - 11.00 AM - 12.00 PM

Verbalize: J. P. Collins wants his small group to get bigger — with 100 United Methodist leaders. He's using his telephone as telephone.

English Majors Have A Dining Club meets every second Wednesday at the Blackhawk Community Center from 7:30 to 10 pm — contact the HMC Secretary, 30 Lakeside, after 5pm. Last Tuesday \$50.00.

Corvallis 1900 Union College, 400 Paul Hill Dr.
 Adams Road, Lancaster, Corvallis—non-
 affiliated, private, women

24th **March**—**Compton's** **Wrens** **start**
Wednesday **evening** **at** **the** **Golden** **Leys**, **New**
Road, **Stratton**—**write** **to** **Mr** **Chapman**, **Field**, **122**
Highgate, **Cambridge**, **Devon** **or** **tele**
0300 **0300** **0300**

Missouri General Council Election For
 School Board Seats ending various Monday and
 Tuesday, Nov. 10, 1992

Hobbies: Diving, Boating, Dragon Independent
 Current Associations: British House Owners
 Board: Residents' Forum

Herts Devil-wedges Independent Primary
 Avea Dragon User Group: 144 Royston
 Lane North Herts Primary: 144 Royston
 H.Q. — regular meetings held every weekend
 until 1 Jan. 1988. Subsequent to be moved

Hartfordshire Paul Kennedy wants to lead a
 Lyons group. His address is 21, Beaumont,
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road. 100%+ of the forest is Oregon Vines.

Lanarkshire John Schofield, Blackburn Cumbrian Club, 1, Salter Street, Penrith, Cumbria — meets every second Monday at 7.30 pm at the Farnham Hotel, Bolton Road, Bolton.

Location: 88 Mirog Group, 41 Paternoster Road, Havant, Hampshire — publishes 88 Mirog Group and Mirog monthly at central London location. Mirog is the group's letterbox details — 88 Mirog Group, Havant.

Nottinghamshire Organ User Group meet on Mondays at the Congregational Centre, Centre Gate, Nottingham — contact Mike Johnson, National IN Caring Class Team, 105a Moor, Beavan, Nottingham & Nottinghamshire, NG3 5J1

Callum: Tony Smith, Callum Computer Ltd.
100 Boring Street, Callum Community Centre,
Dundee Street, Aberdeen, Callum — on
all year club including 20 Dragon-tamers
Hattersville, Tony Bennett, Tania Connors

Call if Active Case Turnover History — an all user club including its Olympic members, usually bi-monthly

Standardized Petal Thickness would be to set up a Users club for Dragon owners in the Standard area. Contact Peter at Synchro-land (Petal)

Freebies: British Computer Club meets in the Red Room of Marbury House at the first and third Wednesdays of each month — joined A R Mazon in 10 Pampford Drive, Cherry Hill Estate, South-west Warrington or telephone 02468 273620.

Traffic: Q2-8 Lane Group: 1st Phase TR Home
North Passage (underpass) — meet monthly
Ministry between a pole and Sheffield City
Polytechnic — contact Richard Crispin,
121 Hemmingson Valley Road Rotherham
(01904) 676666. Underpass to open

General Indole: Duggan-Lear Group (14-16)
 (Buckley, Hammond, 20; Pineda & Valley, 20; Lauer
 group, 14-16)

Northwest Island Medical Club North Coast
Microcomputer Users Club Harbor North-
west Island, Indonesia (PAC 89040)

Assistant: David Anderson, Southern Oregon
Club: I. Walker, Forest, Edinburg
Assistant: Stewart, McWilliams, 124, 11th St.

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National Jewish Robot Partnership Computer
10400 Oak 12 North Square, Pittsburgh,
Pennsylvania 15205. 412/361-1111. Monday

and Tuesday evening from 8:30 to 9:30 pm.
United Kingdom National Design Centre
www.uknadc.com

Paul Gaudin is Newbury Road Working

hence Blackback Horse is looking for Oregon pen-pals to swap ideas and progress with.

His address is 1 rue des Pêcheurs 68000
Grasseville-Mariemont, France
member: Oregon Water Club c/o Portland and

Tony Grancham: Telfon 343 On 5000,
 Memphis Chapter
 Andrew Wheeler: Van Housen: (408) 441-

Club 3 L'Espresso (1998) (New York: Random House)

name is of microtopography in French. Belgium — dragons is a small dragon quite of about 100 cm long.

new Standard 31.0 Course wants to start in
Design and Colour Computer Users Club —

South Africa: Len McCall, medical officer, SA

Oregon-Indiana to contact him at 201-260-0000.
 Email: Randy.Papadimitrakis@CapaTravel.com

Rampage

Program: Mund Mover Software Projects, The Bear Brand Complex, Abington Road, Woolton, Liverpool L25 7GF. Price: £5.50

Only one of the most popular games to be released for the Spectrum was undoubtedly

remains include conveyor belts, rampaging tanks and bloodthirsty helicopters. The sound effects are adequate and there's a continual musical accompaniment. But as this is the same tune played over and over there is, thankfully, an option to turn off the music.

The silly controls you have are left/right and jump, the keyboard is used and it an-

game as there is no way to avoid them, or to predict when and where they are going to appear.

The program supports a pause facility and pressing break restarts a game, but the program performs a "load error" on every fifth save! Programmers start their program with a HQ and set \$75/75 (the next vector) to the start address? It would save a lot of saving and would offer more protection as the "old start" game can be recovered

both very easily and if the program has this instruction to be BCBCode after loading easily becomes very easy.

To summarise, a very good game, named though not beyond reprieve, by those design faults. It is surprisingly addictive and is yet another case of a simple concept being a good one. Well worth adding to your collection.

Jason Osborne



Manic Miner, now Roy Castle has converted this game to run on the Dragon and it looks to be just as good as the machine. The only real difference from the original version is that the graphics are all black and white. This was a necessary drawback to maintain the same resolution as used on the Spectrum.

The object of the game is to guide Miner Willy through the 30 screens, collecting objects as you go. The various

soundly responsive, however not including a physics option these days seems rather strange.

This is a faithful reproduction of the Spectrum version and the fact that the graphics are black and white doesn't detract from the real appeal of the game — one for the collection.

Alan Gedge



Back and forth

Program: Boris the Bold, Baby Computer Games 10, Crossways House, Lutterworth Road, Blyth, Leicester. Price: £1.99

THE IDEA of this game is to get Boris down to the bottom of the screen through the holes that move backwards and forwards on the platform while avoiding the various cat-calling objects and collecting the diamonds for bonus points. The move from top to bottom must be made at a certain number of seconds (50 on the first screen increasing by five on successive screens).

The game plays well, the response is good, the graphics move smoothly and the sound is the best I have heard on any Dragon game. However, unfortunately, the

program has several bugs that spoil its perfection. At the beginning of each of the screens and levels are listed for a second. This shows bad programming technique. Also one of the hazards is what are called "Energy Bursts". These appear randomly decrease all the levels and kill you if you happen to be where they are. They successfully remove 50 per cent of the skill in the



Money jump

Program: Cashmere, Microsoft 40, Thane Road, St Austell, Cornwall PL25 5YJ. Price: £5.00

MANY so-called two-player games merely allow you to take it in turns to control the opposition. Cashmere is one of the few games where both players can battle it out on the screen at the same time.

The object of this entertaining program is to collect as much money as you can while avoiding the strange creatures that also attack the screen. At the start you can choose to control the sailor who looks remarkably like Popeye or the Shark, or both of them if you have a partner, when you both try to collect more than the other.

Each location contains several one-way belts and trampolines as well as carefully placed dollar signs. If you jump at the right time the money is added to your total when all the dollars have disappeared from the screen, a new location appears. Some of the animals you meet are friendly, such as birds that can fly you to the top of the dis-

play, but look out for cats who reduce your length of time on the game, as well as bombs and apples that descend on you with little warning. As you complete one screen, another appears that increases in difficulty, but if you prefer you can choose at the start where to begin your challenge and move on the easy screen.

The concept of the game is good and in spite of the fact that the figures are difficult to control, if you have time to get a high score. If you choose a less entry point in the game, however, it gets a lot more difficult, with ramps appearing



out of nowhere and almost all the loss of your ability to jump. This is the first time I have seen this arcade game on a home computer and Microsoft appears to have a winner that should make money really an evening.

John Sweeney



Bulls eye

Program: Darts, Baby Computer Games 10, Crossways House, Lutterworth Road, Blyth, Leicester. Price: £1.99

DARTS is a computerised version of the popular pub game. Up to nine players can take part using one or two players. A variety of games are

possible — 301, 501 and 1001, with or without a double to start. There is a choice of nine difficulty levels which range from easy to impossible. An extra feature is the "own game" option which allows players to score for themselves or play some of the more unusual darts games sometimes found in pubs and clubs.

The darts are scored by having two pointers, one at

the top of the screen and drift on the left. The intermission between the two games is where the dart is broken when the fire button is pressed. If

give a computer game, and at £1.99 it's certainly cheaper than a dartsboard. However, Darts is a competitive game and so loses all of its appeal



the player takes too long at aiming the dart it is thrown automatically. The program displays each dart's score as well as the total left to go, and before each turn, the program is reminded of higher or lower score.

Darts is a well thought-out game, ideal for those occasions when hundreds of friends turn up demanding to

very quickly it played by only one person. It is a pity that the writers didn't include a computer versus player option which would increase the appeal of the program. That said, it's a good game and must represent excellent value for money.

David Rowntree



Egg waves

Program: Demon Seed, Microsoft 41 Trench Road, St Austell, Cornwall PL25 5AE, Price, £4.95

AFTER many novel ideas it seems a little strange to find Microsoft releasing a game as long in the tooth as this one. Based on the arcade favourite of two years ago, Phoenix, this is a well-written machine code version that seems heavily influenced by Hazkook's masterpiece, the Boss. Only the graphics have been changed to protect the innocent.

The game starts with the traditional picture of Gullfrost growing mainly up the rest of the program loads. There's enough time to go and make yourself a cup of coffee while the happens and as you return the title theme appears together with the option to choose a black ball or green background. There are 10 wall levels to choose from, and the first five themes present no great difficulties.

The theme is saving your face from alien destruction this time in the form of a demon, for the garters of

the top of the screen. The robot can only bridge or hop (breaks off from the mob) and swoosh down on you as you deal away with your laser or move left and right to avoid it. If you succeed in destroying a score of these monsters another wave appears followed by a succession of ever more eggs. These present more of a challenge as they break out into eight segments that need to have both wings and body destroyed before they disappear completely. Simply shooting off the wings results in a Phoenix-like minimal on as another egg appears on the screen.

This is followed by other waves of eggs at different formations that prove rather more difficult to shoot down and occasionally the demons fly up from below to catch you unaware. If you manage to survive the screen, you are soon offered the opportunity to destroy the mother ship.

In spite of a few reservations when I first played the game I can see that Demon Seed has additive potential, although it's hardly the most innovative program of the year.

John Savory



Laser racer

Program: Time Sprint, Microsoft 41 Trench Road, St Austell, Cornwall PL25 5AE, Price, £4.95

THIS is a graphic adventure game that is, at some stage, similar to Touchstone (also from Microsoft). The entire play shows you stories of the end creatures you may meet on your way round the game as you attempt to collect a quantity of treasure.

There are many ordered locations in which the game is



played, the difference is that the locations are not reached by travelling logically from one to the next, but by entering



into time portals in the second frame, and progressing through different mazes. You have a laser with which to protect yourself against the nasty things that live in the maze, but you are also racing against the clock to reach a key hidden somewhere in it, and that leads you back to the start with the treasure.

Playing this game reminded me a little of Jet Set Willy on the Spectrum, although time location takes up more than a whole screen, and scrolls horizontally to the left or right in exactly the same way. Each time the game is played you think up more ideas on how to reach the keys and treasure in less time, and messages to explore more places.

The game involves many skills, not just fast joystick fingers, and should appeal to a wide range of users.

John Savory



Gobble up

Program: Back Track, Incentive Software, 84 London Street, Reading RG1 4SD, Price, £6.95

WOOE is here! — Eddie bears the name of the latest 'computer' from Chris Anderson of Incentive Software. Designed exclusively for the Amiga, this 100 per cent machine code high-resolution graphics game follows the footprints of our hero Eddie as he wanders a winding labyrinth in interconnected rooms in an attempt to find the keys to the magic door. To exit him in his journey is a map showing the plan of the maze, as well as the



items of food which he needs to top-up his energy reserves. Unfortunately there are also thousands of previous versions of Gobble's strength and strategy in his path to gobble him up completely,

although these can be controlled with care. There are also other mazes, long in wait, but I won't depict the reader of the pleasure of discovering these by mentioning them here. Unlike some games that are so helplessly difficult that the novice is likely to become deeply discouraged this game can be played in its early stages at a quite leisurely pace, but there is more to come!

There are no less than five mazes of increasing complexity through which Eddie must be guided using the cursor, or other user-deferrable keys. Complete all five and answer the question on the computer can then appear with the cassette and you stand a chance of winning a C60 disk drive system.

However, the most remarkable feature of this game is the three-dimensional display, some impressive changes in perspective as we move around taking a bird's-eye view of Eddie's perspective in and out of the rooms.

One minor quip — is a joystick option would have been well come, but overall an excellent adventure at a realistic price.

Gordon Lee



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THE CHIP SHOP

Keith and Steven Brain put you in touch with the Chip Shop with a look at two Basicode programs

ONE OF the current growth areas in microcomputing involves linking users together into various forms of networks where they can transfer information and programs between their machines. While the macros involved are of the same type this is relatively simple, but trying to get two different macros to converse can be rather like working for AT&T.

On the radio

Much has been written about Prestel and the telecommunication systems by which you can "buy" programs via your telephone and services such as Modem and CompuLink, but the developments in international computer programs direct to the user by tape have had much less exposure. These are in many ways more interesting and exciting, not least because such programs are free to anyone who has a good old-fashioned "air" radio.

Those of you who listen to the BBC's regular Chip Shop program will probably already know the origin and purpose of the Basicode system, but for those who scorn mere audio entertainment we will briefly outline its development.

Way back in the dim dark beginnings of home radios (1919) the Dutch domestic radio service — Nederlandse Omroep Stichting (NOS) — first experimented with transmitting a computer program (not the bit). This proved technically successful and they therefore proceeded to regularly transmit programs on their weekly "hobbyradio" program. Some readers may also remember a test transmission made by the BBC TV Tomorrow's World program consisting of short Apple and ZX81 programs.

Although the transmitted audio tones could be received accurately these were still a number of problems — not least of which was the fact that ordinary listeners complained about the "fartlike" "interfer" noise they seemed to be receiving. More seriously the value of the transmission was very limited since almost every machine has a different cassette interface so that any particular broadcast was only potentially useful to a small group of people; this will be obvious to anyone who has listened to the various weird and wonderful tones produced by tapes for different machines. In addition it is not enough for the machine to be able to recognise that a signal is arriving at its cassette interface as it must be able to translate it to a radio rate into a machine-readable format and then into a Basic program.

Although Basic is often seen as the

computer equivalent of English it's defaults are so many and varied that it reminds us of the quotation "England and the USA — two nations divided by a common language." Although it is a relatively simple matter to transmit data from one computer to another by the RS232C protocol this does not automatically provide conversion between different dialects of Basic. Even where a listing of the same program on different machines shows the same the internal representation ("tokens") may be different.

A Dutch radio amateur named Kees Rogers came up with the idea of a new independent code system which could be both "read" and "written" by a whole range of home computers. In this way a single broadcast could be simultaneously used by a range of machines. The idea was taken up by an interested group of users and thus Basicode was born. The system is often described as "Computer Esperanto" but as Esperanto is an artificial language which has had rather limited success, whereas Basicode is essentially a subset of Basic with a restricted vocabulary, we feel that Polgen (Brain) describes it rather better.



Barry Newman, presenter of Radio 4's Chip Shop

Further developments of the original idea have produced improvements and expansion of the system which has now passed, through BASICODE2, to BASICODE3. The system has attracted international interest and in addition to the Dutch broadcasts, Basicode programs are transmitted in the UK, USA, Canada, Australia and throughout Europe.

To use the Basicode system you need to buy a special Basicode translation program for your computer. The main source of these is the BBC's Chip Shop program through Broadcasting Support Services. Its new BASICODE2 package provides a single tape containing suitable programs for no less than 12 different machines including, at least, the Oregon 32 and 64.

Providing the whole galaxy of programs

on a single tape provides good value for money and certainly the Oregon version is the first program on tape so that it is easy to locate. In addition to the tape a comprehensive 71 page manual is provided which gives a good introduction to all aspects of BASICODE.

The standard of this documentation is good, it should reduce most software (and hardware) manufacturers to sackcloth and ashes. Not only are the workings of all the versions of BASICODE explained but full details of the standard and how to write your own BASICODE programs are included.

In comparison with the BBC version is an alternative offering from Mike Henry of Grosvenor Software. The current version of this only allows you to load BASICODE programs, but further developments are in progress and it has a number of additional useful features which are described below.

Two tones

Two tones are used to record data onto the cassette at a fixed rate of 1200 A logical '0' is defined as one full cycle of 1200 Hz and a logical '1' as two full cycles of 2400 Hz. The transmission sequence is:

- 1 start (page 3)
- 2 address (least significant first)
- 3 message (page 1)
- and a Basic program is coded in ASCII characters and not as the tokens used internally by the computer.

A checksum is included to detect errors in transmission. This works by performing an "exclusive OR" on all the previous bytes in the block and warns you if an error is present. If such errors are minor they may possibly be corrected by LISTING and EDITING the converted program. Once a program has been translated to Oregon Basic it can be saved and RUN at the normal rate.

Both the BBC and Grosvenor packages are machine code routines coded by the usual CLIMEX (continued) and both fit in the Oregon 32 tape graphics pages. As they start on page 3 they do not interfere with Oregon 32's and other programs can easily be transferred to disc.

As the graphics pages are occupied by normal screen emulators such as Rambo Writer or Bomb cannot be used at the same time as BASICODE (although they can usually be used in conjunction with converted programs).

A number of standard Subroutines are an essential part of Basicode and the functions of these are included as part of the translation program (standard). They



Versatile interfacing

Brian Cudge looks at a simple interface from NCJ Electronics

SHARP is definitely the key word to this interface from NCJ Electronics. A short measure of ribbon cable connects the 1½ inch x 3½ inch job to the printer output of the Dragon.

Clear documentation

The doc behind the interface is a 16-page users to experiment with controlling simple external devices such as relay, solenoid motors, or relays to drive larger devices. You effectively get eight output lines to use enabling up to eight independent devices to be controlled. Very clear documentation is provided, which includes an application example which drives four leds and four relays.

Accessing the interface is very simple either from Basic using PRINT-2 or from machine code by calling the printer ROM routine at 48203.

The main component of the interface is a small chip which houses an eight bit latch — similar to one byte of memory

This means when a value is put on the input of the latch and the system is clocked by the strobe connection from the Dragon, the output side of the latch takes on the new value and keeps it there until the chip is clocked again. This has the effect that the output is a steady configuration of '1's and '0's even though the input is

continually being changed by the Dragon doing other tasks, such as reading the keyboard. The BUSY line and the Dragon is kept at 'Ready' so the computer doesn't hang up when you attempt to send data to the interface.

The possibilities for using the interface are numerous — for example, the Dragon could control the switching of a model railway, the signals points and so on and all in 'real-time' using the Timer function of Basic. As the maximum load current is only 200ma, it would probably be necessary to wire most appliances through relays. The circuit would be a simple one as shown in figure 1.

Very little electrical knowledge is needed to get the circuits working and this product is really ideal for anyone who wants to dabble in electronics, but it is robust enough to drive DSA on a full I/O interface. The interface costs £14.95 and is available from NCJ Electronics, 15 Gifford Square, Elm Street, Hull HU6 3AP.



Figure 1

BACK TRACK

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MAIL
ORDER



INCENTIVE SOFTWARE LTD.

54 London St., Reading
Tel: (0734) 591678

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Machine gun features

[illegible]

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TIME ATTACK

[illegible]

1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-2362, 2362-2363, 2363-2364, 2364-2365, 2365-2366, 23

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Digital music comes on cassette In a decade from today, says
scientists, we'll have the CD's of the future.

Abstract: The authors discuss the importance of the

Received 10 February 2004; accepted 10 March 2004

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This is a very professional program and was certainly well organized. **Goodbye, 1999. Hello, 2000.**

Received and Read: 12/20/2007; accepted: 12/21/2007

Revised manuscript accepted for publication 11 June 2013

KNIGHT SOFTWARE

1. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

Abstract

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Bookbytes

Direct books for review to: Dragon User, 1211 Little Newport Street, London WC2N 6LJ.

Book: Shortcutter for the Dragon 32

Author: Catherine Ludmils
Publisher: Phoenix Publishing Associates
Price: £3.95

H&B ARE a number of programs covering an assortment of novel ideas, many of an educational nature, which are able to test our skills at mental arithmetic, observation, creating number codes, and finding our way through a couple of mazes — as well as a couple of miscellaneous programs.

Armed mainly, I would think, at primary and secondary levels, the 23 routines are fairly simple and have been collected for the Dragon from material in companion volumes for other micros.



Unfortunately it is in the conversion that problems arise. In order to use the character set in the 80x mode most of the listings contain one or two different sub-routines, each of the two computers having used the one different routine. The length of the listings could have been reduced quite dramatically if they had agreed to use just one routine throughout and had listed it just once at the beginning of the book, rather than repeating it in full in each program.

Indeed a number of the programs would have been as effective — and much simpler — if low resolution graphics, and one or two more, well have been omitted altogether. In particular a 'who-dunnit' mystery which turned out rather disappointingly to be

an over-elaborate word matching exercise.

But it is which do not always match the listings, a number of typographical errors and some rather quaint grammar give the impression of a hastily put together book. In particular the author recommends that the R&B statements be omitted to increase speed. My advice is don't as most GOTOs and GOSUBs are addressed to these lines and without them the programs will not run at all.

David Lee

Book: Great Book of Games for your Dragon

Authors: Tim Hartnell, Alan Blackman, Roger Bush, Robert Young
Publisher: Fontana
Price: £3.95

THERE ARE games to suit every taste in this book by Tim Hartnell and friends, ranging from Acorns to Adventures, Gambling to Simulation/role play. Each program has a page or so of introductory text which explains how to play and how the program works. The listings are taken directly from the printer and are very clear so there should be no problems with typographic errors which have plagued books such as this in the past.



As usual, the quality of the games varies considerably but overall the standard is quite high and many games would have the Dragon's high and low resolution screens well.

As each game is individually described, as well as a source

or cheap games, trying in these programs will help you learn much about your computer and how to write programs. There are 24 games altogether, as well as useful appendices on creating moving graphics and error trapping. There is also a glossary of Computer and the end of the book.

The Great Book of Games is of the quality we have come to expect from Tim Hartnell and is £3.95 represents very good value for money.

Brian Cudge

Book: Dragon Machine Code

Authors: Robin Jones and Eric Cowell
Publisher: Shire
Price: £5.95

THE R&B appears to be a third generation of computer books on the market. The first was the Twenty Trained-Out Games for your — then when the publishers realised that people didn't get much satisfaction in programs without learning from them, they produced sports of 'Learning to program your' where they assembled all the listings and added fairly digested re-written blocks of the manuals for the subject machine.

Also included was a 'background' of the program written at a totally different level to the rest of the book making it impossible for the beginner to understand how the games worked but allowing him or her the satisfaction of the pointers (albeit surface) 'learning experience' provided by such books. The new third general one appears to be showing some maturity as it is a course 'Programming Machine Code on your'.

The book that is the subject of this review appears to have a strange blend of the excellent and the extremely misleading. The main reason for this is it does not know the average intelligence quotient of its readership. I have been programming in machine code now for a long time, but I found some of the routines that were being used difficult to grasp. This is surely a test of the text not explaining the using in enough clarity.

The book contained a reasonably good introduction to programming for beginners and the authors Robin Jones and Eric Cowell had needed acquaintance most of the time. The book provides its reader with a machine code monitor and a good choice is devoted to high-resolution graphics in showing a machine code routine to write 1024 on the high-resolution screen of a truly 320 program that is 32 by 24 character resolution. This alone makes the book worth consideration.



Sadly though, the book has some glaring faults. Firstly, for low-much beginners is put on hand coding because say the authors, assemblers, cost too much. There is nothing much off putting to a beginner that a series of tables and numbers. Also, very little help is given as to why things work, especially when dealing with graphics modes. Tables are given but the descriptions do not help the user to investigate. Several are not mentioned at any point and binary Codes (as they appear) to have disappeared from the face of the authors' work.

All things considered, this is a good book to consider if you want to program your Dragon in machine code. However, in my opinion the authors Zak and Russell produce books in a better class and this book is not Dragon specific enough to make a worthwhile purchase over them. See it before you decide.

Jason Critcham

Dreaming up Dragon designs

David Sam gives you the wherewithal to create your own designs

MANY GAMERS and other programs can be greatly improved and made more interesting by the addition of some good graphics. This is difficult to achieve just by stringing a few graphics commands together and, by trial and error, finding the correct numbers. Very often a basically good game is ruined by poor graphics.

Designer is a comprehensive program that enables pictures, backgrounds and plots to be quickly and easily chosen. It allows you to access all of the Dragon's excellent graphics capabilities and also the normally missing tool set for the Hi-res screen.

On this version only the upper case letters and numbers are supported but other characters can easily be added in the vocabulary module of the program. The program itself consists of a main loop from which the command modules are called. This allows easy debugging and easy extension. Each module is independent and can therefore be modified without difficulty. There are three operating modes — Initiate mode, Design mode and Tool mode.

Initiate Mode: There will be a short pause when this module is being initialised. You will then be asked which PMODE you wish to work in and then which colour set. Next you are asked for the foreground colour.

In two colour modes the other colour defaults as the background colour while in four colour modes you are asked for the colour. The screen then goes into Initiate and Design mode.

Design Mode: The joystick drives moving the cursor in the current foreground colour. If the fire button is pressed then it only moves the cursor without affecting the background.

Variables

UDRL Draw in the same direction as the corresponding DRAW statement.

EFGH, Commands

S Set/initiate mode depending on the current screen.

E Ends the program.

+ Increases the scale factor by one or a step by which the cursor moves.

- Decreases the scale factor by one.

FG-B Change the current foreground colour to the corresponding number if it is possible.

P Prints the area from the cursor

initiated by the colour given after its calling.

O Draws a circle or an ellipse around the cursor in the current foreground colour depending on the premises given.

V Displays all the variables that are user controlled.

F Alters the use of the LINE statement and its options. The two points are positioned by the joystick and confirmed by pressing the fire button.

M Moves an area of the screen of a user defined size and replaces it in one of four of the PUT state menu options (including NOT). You must define the top left corners of each area in the same way as the " command. After both of these commands the cursor is still in its original position.

T Saves the screen to tape.

S Erases the screen to a given letter's tool mode from design mode.

There is no delete command as you can erase things by simply drawing over them in the background colour. The size of an area to be moved can be found by moving the cursor around the area and by also using the "Y" command to find the X length and the "F" length by the differences between the start and end co-ordinates.

Tool Mode: The joystick moves the character position around the screen. The fire button shows the cursor but fire affects the background as a bridge between the current foreground colour and the background colour set in initiate mode if the cursor at that position is different. The cursor keys set the direction of pointing the characters.

Variables

SP Returns control to design mode.

SPACE Prints a space in the current direction.

A to Z and 0 to 9 Print the corresponding character in the current direction.

X Y These are the co-ordinates of the cursor.

COLOUR This is the colour set being used.

PROD This is the colour that the cursor will draw in and the colour

BACK

SCALE

ANGLE

The variables X and Y only are used in design mode while ANGLE is only used in tool mode. COLOUR, PROD, BACK, SCALE all apply to both modes. If the SCALE is too small then the cursor will not move properly. Again there is no delete command. You can alter contents the characters in the background colour or also use the " command to blank out a character position.

Program notes

Letter

100 to 150

200 to 440

1000 to 1040

2000 to 2060

3000 to 3070

3000 to 3060

3070 to 3110

3120 to 3210

3220 to 3210

3220 to 3270

4000 to 4070

5000 to 5050

6000 to 6050

7000 to 7170

8000 to 8090

9000 to 9090

10000 to 10170

11000 to 11270

12000 to 12170

13000 to 13170

14000 to 14170

15000 to 15170

16000 to 16170

17000 to 17170

of the text (ie background colour).

This is the background colour chosen in initiate mode.

This is the size of the steps that the cursor moves and the size of the text corresponding to the DRAW statement's "S" command values.

This is the current direction with values corresponding to the ones of the DRAW statement's "A" command.

The variables X and Y only are used in design mode while ANGLE is only used in tool mode. COLOUR, PROD, BACK, SCALE all apply to both modes. If the SCALE is too small then the cursor will not move properly. Again there is no delete command. You can alter contents the characters in the background colour or also use the " command to blank out a character position.

Program notes

Letter

100 to 150

200 to 440

1000 to 1040

2000 to 2060

3000 to 3070

3000 to 3060

3070 to 3110

3120 to 3210

3220 to 3210

3220 to 3270

4000 to 4070

5000 to 5050

6000 to 6050

7000 to 7170

8000 to 8090

9000 to 9090

10000 to 10170

11000 to 11270

12000 to 12170

13000 to 13170

14000 to 14170

15000 to 15170

16000 to 16170

17000 to 17170

Initiate variables

Main loop (Design Mode)

KEYS holds the keyboard input.

The cursor is flushed by inverting the point at X,Y by using the PUT statement and then repeating the process leaving the point the same.

Initiate Mode:

Change the foreground colour.

Tool Mode:

Control loop.

Joystick commands.

Check for recommended characters.

Draw numbers.

Draw letters.

Draw screen.

Increase SCALE.

Decrease SCALE.

Move cursor and draw in foreground colour unless

point movement is specified.

Convert the joystick input for drawing.

Paint the area around the cursor.

Use the LINE statement.

10000 to 10099 Draw a circle at an angle
 10000 to 10000 Display main variables
 14000 to 14100 Save the screen to tape
 10000 to 10000 Move on screen of the screen
 10000 to 10000 Dump the screen to the printer
 This Basic screen dump is for a Sinclair QP-100A. If you are using a machine code screen dump that you must CLONAM 4 before line 60.
 10000 to 10000 Connects the screen for the output routine
 10000 to 10000 Output routine
 In lines 10000 and 10000 there are two

POKEs that put the Dragon into superfast mode and also return it to normal speed. One must first if your machine does not accept the more common POKE & HPP-DT 0. While in this mode only the printer output is unaffected but everything else is, therefore, to prevent any spectacular crashes.
 Line 10000 should be installed before testing this module. While the screen dump is running do not be alarmed by the garbage appearing on your screen as this is only a small side effect of the superfast mode.
 The second listing shows the changes necessary if you do not have a joystick.

You must also edit lines 10000 to 10000. This will give the following changes in instructions. In design mode the cursor keys will move the cursor without affecting the background. In test mode the shifted cursor keys will move the character position and the clear key will display the test cursor.
 Readers who have any further questions can write direct to the author at 11 Hawthorn Way, Chesham Green, St Albans, Herts AL2 9BG. Also for those of you who are put off by all the typing, a cassette containing copies of each version of the program on either side is available for £3 from the author. ■

```

10 REM ***** SCREEN DUMP *****
20 REM THIS MODULE DUMPS THE SCREEN
30 REM TO TAPE OR TO THE PRINTER
40 REM THE SCREEN IS DUMPED IN 10000
50 REM THE SCREEN IS DUMPED IN 10000
60 REM THE SCREEN IS DUMPED IN 10000
70 REM THE SCREEN IS DUMPED IN 10000
80 REM THE SCREEN IS DUMPED IN 10000
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1010 REM ***** SCREEN DUMP *****
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2000 REM THE SCREEN IS DUMPED IN 10000

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Continued on page 27

DRAGON OPEN FILE

Send us your Dragon programs, beginning with a general description and then explaining how the program is constructed. Take care that the listings are all bug free, enclosing a cassette and, if possible, a printout. We pay £8 for each original bug-free program published, double for the program of the month. If you have any problems with the listings, please send your queries to the appropriate author, Dragon User, 12-15 Little Newport Street, London WC2R 2LD.

Screen Edit

From Wayne Smithson in Leeds

THIS PROGRAM is a full screen editor to edit graphics characters and allows you to create graphics screens to be loaded in before your own program. The program is easy to use provided the instructions are read carefully. This way is much better than writing a program with endless data statements full of numbers to be POKE'd or PRINT'ed on the screen.

You can create eight screens at once and store them. Copy screens, save all eight or just the finished screen to tape and then load it again to carry on editing. Choose any character in any colour, draw and erase. Move around all the screen quickly and if everything goes wrong you can clear the screen and start again.

Program notes:

The following instructions are to help you use the program efficiently and may sound complicated at first but as you use the program they will become clearer.

Arrow keys — Move cursor around the

screen at high speed.

Clear key — Clears the screen to the background colour chosen (default=black).

B — Background or border choice. Allows you to choose any colour (background including multi-coloured) or any character border (in any colour).

C — Character choice. Allows you to pick any character from a set by using left and right arrow keys to choose character. Press spacebar when you have selected the chosen character.

D — Draw character (choose in 'C') on screen when you move around the screen. This also allows you to rub out by using 'G' (see G).

E — Erase. This doesn't actually erase but is used to get out of DRAW mode. This changes the cursor back into a 'space'. You will then be able to move around the screen without actually doing anything.

F — Filled writing. This will take you out of writing mode and you will be faced with another screen. Follow the main instructions carefully.

G — Get rid of character (erase if you like). This is only effective in DRAW mode and erases characters as you move. Typing G again will put you back in draw

mode. Using 'E', 'D', 'G' you can create pictures very quickly draw broken lines and so on.

L — List our menu. There is a mini-menu that you can look at while editing that should jog your memory if you forget any commands.

M — Move screen. This allows you to shift the whole screen (except borders) to either the left or to the right. For example, if you drew a picture (on the screen) and it wasn't in the middle, you would use this to move it.

S — Screen change. This gives you a choice of two coloured screens. There is green (usually) or orange (screen 0).

T — Text on screen. This allows you to place text on the screen in inverse coded or normal. Any text in inverse code must be placed inside " " e.g. HENRY WOZ CRE 1985 would be placed on the screen in inverse code.

Should anyone have any problems with the program, I would be glad to help, and also I realise that there is a lot of keyboard typing to be done before you can use it so I will really value the program for you for a small fee if you send an 8A5, a cassette and G) to the following address: Wayne J. Smithson, 24 Cook-Hill Green, Sharnley.

```
10 *****
30 ** SCREDIT SCREEN EDITOR **
35 *** ** ** ** **
40 ** ** WRITTEN BY: ** **
50 ** WAYNE J. SMITHSON **
60 *****
70 ** (C) 1984 W.J. SMITHSON **
80 *****
90
100 GOTO130
120 IF ED="D" THENY=2
130 RETURN
130 CLRARR:CLEAN500,31999:SG=128:
ED="E":G=145:X=1024:SC=1:SOUND1,
1:POKEH"FF",M :POKEH"7FFF",M400:
GOSUB650
140
150 CLG:CLG: ' TO MAKE SURE!
160
170 CLG:PRINTSG4,51:INSG(32,42):""
= SCREDIT - SCREEN EDITOR. *****
***** WRIT
```

```
ITTEN BY WAYNE J. SMITHSON "MTRM
G4"(2,42):SCREEN0,1
180 FORN=1TOS:EXEC32000:NEXT:PRINT
SG4,"=SCREEN EDITOR BY W.J. SMITH
SON":SCREEN0,1:FORN=1TOS:EXEC3200
0:NEXT:FORN=1TO128:PRINTSG4B0,"":EXE
C32033:NEXT:GOSUB770:GOTO500
190 EXEC32100:CLS:PRINTSG4,"DO YOU
WANT:",""1) SCREEN 0,1","2) S
CREEN 0,6","ENTER 1 OR 2---":
200
210 ' SEE YOU JIMMY!
220 I 61 YA MUN W! THE REED!
230
240 OR=INKEY:IFOR="1" THENEXEC321
50:SCREEN0,1:G=1:RETURN ELSE IFOR=
"2" THENEXEC32150:SCREEN0,0:G=0:RE
TURN ELSE240 250 EXEC32100
260 CLG:PRINTSG4,"DO YOU WANT:","
1) BACKGROUND","2) BORDER","
3) GO BACK TO EDIT MODE"...OPTION
---"
```

Continued on page 34


```

370 G=INKEY$:IF G="1" G=DEL:G="T"
HENC?) ELSEPRINTU$:IF G="3" THENR
EC32150:GOTO310
380 IF G= "4" THEN330
390 CLS:PRINT"background set"PRIN
T"PRESS THE * KEY WHEN YOU SEE THE
BACKGROUND THAT YOU WANT N.
B. destroys present screen"000087
50:FORB=0TOB:N=0.CLS400:PRINT8480,
C4100:
300 N=N+1:G=INKEY$:IF G="8" THEN3
20 ELSE IFN=100 THEN300 ELSE NEXTB
400:PRINT80,"":FORM=14370255STEP
14:PRINTSTRING$(32,N):NEXT FORM=2
3970:433STEP-14:PRINTSTRING$(32,N):
NEXT:PRINT8480,C4100:IN=0
310 G=INKEY$:IF G="8" THEN130 EL
EN=14:IFN<100 THEN310 ELSE320
320 M=0:CLS:Y=0:PRINT"YOU CHOSE "
C4001:FORM=0TO999:NEXT:IFM<? THE
NCLS:M1:G=PEEK(1111):GOTO510 EL
S:PRINT80,"":FORM=14370255STEP14:P
RINTSTRING$(32,N):NEXT FORM=3370
1433STEP-14:PRINTSTRING$(32,N):NEX
T:G=PEEK(1111):GOTO510
330 CLS:FORM=12970143:PRINTSTRING$
(32,N):NEXT FORM=0TO64:FORM=10247
01535:FOR EN,PEEK(M)+14
340 G=INKEY$:IF G="8" THEN340 EL
S:ENXTN,N+1:FORM=1024701535:FOR EN,PE
EK(M)-12
350 G=INKEY$:IF G="8" THEN340 EL
S:ENXTN:GOTO260
360 Y=0:G=PEEK(M):SCREEN0,S:EXEC3
2150:FORM=1024701535:FOR EN,0:POKE
M+480,0:NEXT:FORM=0TO15:FORM=1055
701533STEP32:FOR EN,0:POKEM+1,0:N
EXT:GOTO510
370 EXEC32100
380 CLS:PRINT864,"ENTER YOUR LINE
OF TEXT PUTTING " " ROUND ANY BITS
THAT WANT TO BE inverse video"LI
NEINPUT"TEXT:","T
390 PRINT"WHEN YOU GET TO WHERE YO
U WANT TO PUT THE TEXT THEN PRESS
"P " FOR PUT, IF YOU WANT TO RUN
IT OUT AGAIN, PRESS R FOR ERASE
","00008750:SCREEN0,S:EXEC32150:G
OTO510
400 DTF="":THEN 510 ELSEEXEC32100
410 CLS:LL=LEN(T):L=LL:FORM=170LL
4IFD2$(TF,N,1)="" THENL=L-1:NEXT
ELSENEXT
420 IFX<L:1533 THENPRINT"NOT ENUFF
ROOM ON SCREEN FROM HERE...."T
R Y AGAIN"00008750:SCREEN0,S:EXEC3
2150:GOTO510
430 TF="":EXEC32150:FORM=X+1 TO X
+L:TF=TF+CHR$(PEEK(M):NEXT:LL=L
EN(T):FORM=170LL:IF MID$(TF,N,1)
="" THENIF2=0 THEN2:1NEXT ELSE2=0
1NEXT
440 IF2=1 THEN22=64 ELSE IF2=0 THE

```

```

N12=0
450 IF MID$(TF,N,1)="" AND 2=1 TH
EN22=0:GOTO480
460 IFMID$(TF,N,1)<"A" THEN22=64
470 IF NULL THEN0:GOTO510
480 Q=0+1:POKE0+Q,ASC(MID$(TF,N,1)
1-22):NEXTN:Q=0:GOTO510
490 DTF="":THEN510 ELSE FORM=170
LEN(T):POKEM+N,ASC(MID$(TF,N,1)
1):NEXT:GOTO510
500 CLS:PRINT"YOU ARE NOW IN EDITI
NG MODE....":EXEC32000:EXEC32150
510 GOSUB110:G=INKEY$:IF G="" THEN
580 ELSEIF Y=2 THENPOKE,CH ELSE PO
KE,Y
520 IF G=CHR$(12) THEN IF M1=Y TH
ENCLS:M1:G=PEEK(1111) ELSE2=Y:G
OTO30:G=PEEK(1111)
530 IF G="8" THEN250 ELSEIF G="L" G
OSUB770 ELSEIF G="T" THEN370 ELSEI
F G="" THEN400 ELSEIF G="R" THEN4
70 ELSE IF G="8" GOSUB90
540 IF G="P" THENEXEC32100:GOTO0
0 ELSEIF G=" " GOSUB030
550 IF G="B" THEN ED="B":GOTO510
ELSE IF G="E" THEN ED="E":GOTO5
10
560 IF G="G" THEN IF CH=05 THEN C
H=TE ELSE TE=CH:CH=05
570 IF G="C" GOSUB1050 ELSEIF G="
M" GOSUB1100
580 GOSUB110:IF Y=2 THENP=PEEK(13):P
OKE,X:CH=Y=0 ELSE IF Y=1 THENPOKE,
P:Y=0
590 IF Y=0 THENP=PEEK(13):POKE,X:RND
(2)+447:Y=1
600 IFPEEK(144)<223 THEN620 ELSE
IF Y=2 THENPOKE,CH:Y=2 ELSE POKE
,X:Y=0
610 IFX<1535 THENX=X+1:GOTO580
620 IFPEEK(143)=223 THENPOKE,X:P:IF
X<1024 THENX=X-1:Y=0:GOTO580
630 IFPEEK(141)=223 THENPOKE,X:P:IF
X<1055 THENX=X-32:Y=0:GOTO580
640 IFPEEK(142)=223 THENPOKE,X:P:IF
X<1504 THENX=X+32:Y=0:GOTO580
650 GOTO510
660 FORM=32000TO32067:READM:POKE
M,WAL("MH"+M):NEXT:FORM=32100TO321
16:READM:POKEM,WAL("MH"+M):NEXT:
FORM=32150TO32166:READM:POKEM,WAL
("MH"+M):NEXT
670 FORM=0TO9:READM:IN:1:NEXT:RETR
N
680 '
690 ' ALTER THIS DATA FOR A
700 ' DIFFERENT PROGRAM'''
710 '
720 DATA 1E,4,0,86,84,80,40,87,80,
8C,6,0,26,FD,8D,11,86,4,0,A6,84,8D
,40,A7,80,8C,6,0,26,FD,8D,1,39,86,
FF,87,FF,25,86,C8,87,FF,20,8E,1,0,
30,1F,26,FC,7F,FF,20,8D,9,73,FF,20

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Continued on

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Dragon convo

John Buckley gives the tokens and listings necessary

The TANDY Color Computer and the Dragon 32 are both based on the 68000 chip. They also share Microsoft Basic. When typing Basic programs into either machine there is no need to change anything for each. Their assembly codes are identical. One might therefore think that a program which runs on one machine could be saved on tape and then run on the other.

However, this is not so. When presented with a tape recorded by one machine when the third byte is the other the tape will load OK, but as soon as you type RUN the only thing you can get out of your trusty main is a syntax error (and there is nothing more frustrating than that).

The problem is that the Dragon and CoCo use different tokens to represent Basic commands. What is a token? you ask. When you type in a Basic command it is recognized by all those good little bits in ROM and, rather than storing it as a string of letters in ASCII (i.e. stored using only one or two bytes of memory), these bytes are the letters which your micro-recorder uses as Basic commands when you RUN the program. So when you CLOAD a program into a CoCo that was DSAVED from a Dragon (or vice versa) many of the letters will be misinterpreted.

You can exploit the tokens in your memory by using a listing. I program lines 20 to 100 FOR the values 128 to 255 into program line 10 ten values at a time. Line 70 PRINTs the values what were FORed.

and line 80 LISTs program line 10 with the values, now represented by the corresponding Basic commands. Typing GO100 will cycle through the next ten values. The second half of the program does the same thing for the two byte tokens.

A listing of the tokens for both the Dragon and CoCo together with their associated commands is given in table 1. The table is in two parts. The left side lists the Basic commands in alphabetical order with the corresponding tokens for the CoCo and Dragon. The right half of the table lists the tokens in numeric order with the corresponding commands.

Several alternatives

Once you have the listings there are several alternatives regarding what you can do with them — you can list them in DATA statements, READ them into arrays, and then use the arrays as look-up tables. This method occupies a fair amount of storage space (about 3K) which, if you are only translating short programs, may not make much difference.

If you are trying to translate a program which takes up most of your available memory then any look which saves a few bytes is to your advantage. I chose the memory saving method.

I set up a translation program which allowed me to input the look-up tables, print them out (table 1), save them to tape and read them from tape (see listing 2).

The program is fairly short and user friendly. The remarks will help you to understand the various aspects of the program. With this program I saved my look-up tables to tape for future use.

One word of caution: the program is a stand-in for translated Basic and Data Basic, not having access to a Dragon disk I was unable to determine the tokens for the Dragon Disk Basic commands. For this reason you will find 0 in the token list for the Dragon or 77 in the keyword list of table 1. If you have a Dragon Disk system you can fill in the empty spots using listing 2.

Once you have entered listing 2, type RUN and select option 1 from the menu. You will receive the prompt: "COBIN = ?". —ENTER DRAGON KEYWORD— Use the right half of table 1 to enter the correct command which corresponds to the token displayed. When you have entered all the statements the program will return to the menu. You can either press the token to the screen or print or you can save it to tape.

Having saved the look-up tables my next step was to get them in a more accessible and convenient form. Program listing 3 did this for me. It organizes the one byte tokens into the arrays from subscripts 1 through 79 and two byte tokens in arrays from subscripts 79 to 113. It also reloaded the token look-up table to eliminate the disk tokens. Of course, if you have the missing disk tokens you will want to save a complete set of tokens. To do this make the following changes in listing 3.

```
40 DIMCT(100) TO(100)HT(100)
  DT(100)
140 FORI=128 TO255
160 FORI=256 TO511
260 FORI=512 TO1023
```

The data saved by listing 3 will be used to translate Dragon to CoCo programs or vice versa. Program listing 4 does this. It reads the look-up tables into arrays TO(1 to 79) and DT(1 to 35) from 60000 through 60019, sets the end point for conversion to the beginning of the conversion program DRTGCC (line 60120) and rewrites the program to be converted with DRTGCC (line 60140). Using a program we will discuss shortly, line 60150 through 60180 keep up informed of the program's progress.

The actual conversion takes place in the subroutines starting on lines 60200 (two byte tokens) and 60250 (one byte tokens). Lines 60260 through 60240 step through

```
10 DATA 123456789012345678901234567890
20 ST=PEEK( 25)*256+PEEK(26)
30 FORI=128 TO255STEP10
40 FORJ=8*TO9 IFI+J>255THENI=60
50 POKEST=6+3*J I+J POKEST+7+2*J.44 NEXTJ
60 CLS
70 FORJ=8*TO9 PRINTI+J. NEXTJ
90 LIST10
100 NEXTI
110 FORI=128 TO255STEP10
120 FORJ=8*TO9 IFI+J>255THENI=140
130 POKEST=6+3*J.255+POKEST+7+3*J.1+J
  POKEST+8+3*J.44 NEXTJ
140 CLS
150 FORJ=8*TO9 PRINTI+J. NEXTJ
160 LIST10
180 "*****"
200 "*** CLOAD*TOKEN ***"
210 "*****"
```

h/Tandy v/erter

ware to convert Tandy programs to the Dragon and vice versa.

[illegible]

the program to be converted one byte at a time until it finds a token. It jumps to the conversion subroutine (line 00070 in `list01.c`) to get the corresponding token and then `PCOR` is a back into the program being converted (line 00080).

If you are using a disk based system you will have to make the following changes to Index 6:

80020 DIATC(128) FD(128)
80020 FDIR=1FC185
80020 FDIR=8F10128 G(200000)
80020 FDIR=1FC02

Listing 4 is set up to convert a Dragon program to run on the CoCo. If you have a Dragon and want to convert COCO programs change program line 60290 to `open: if TC(A)=TK THEN TK=TC(K)`

Now that we have all the boxes we need to put them together and make a new one. One additional tool is needed: a merge program. Listing 5 does this for us. It is a machine language program which allows you to load the conversion program into the back of the program to be converted by making your moves. Note it doesn't issue a conversion message.

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Here are the steps to convert your program CLOAD listing to and type RUM. You will receive the prompt line 40. Make sure name of the program lines in the program to be converted equals 00000. If they do use RENUM to convert the listing. CLOAD the program to be converted and then enter EXEC249. If you do a test at this stage all you will get from your handy green eye will be OK. Don't despair, your program has not been lost, only masked by the incorrect prompt.

CONVERT is a DOS batch file and type ASCII. The conversion program has two main parts: one that prompts for the start and end address of the program being converted as well as the new address being converted; based on this, the batch file calls **CHANGC** on the command line to convert the conversion program. The batch file then looks for it at the address specified. If a problem does arise, the program will stop and give you an error message. When the conversion has been completed, the conversion program will delete itself and give you a prompt to **CHANGC** the converted program.

If you don't want to go through all the work and aren't worried about memory space then program listing is a for you. It's not expensive. It contains all the

[illegible]

Table 1

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[†] *Statistica* 2000, 19, 10, 1000-1001.



Tape 69

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Page 13

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Table 10

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[illegible]

1. **Identify the problem.** The first step is to identify the problem. This involves understanding the symptoms and the context in which they are occurring.

Table 1 continued

PCLEAR	192	175
PCLS	189	171
PCOPY	199	182
PEEK	255134	255140
PLAY	201	194
PMODE	200	193
POINT	255145	255153
POKE	146	147
POG	255154	255131
POINT	255160	255159
PRESET	190	173
PRINT	135	135
PSET	189	172
POT	197	190
READ	141	141
REN	130	130
RENAME	214	0
RENUM	203	196
RESET	157	159
RESTORE	143	144
RETURN	144	145
RIGHTS	255143	255131
RND	255132	255132
RSET	210	0
RUN	142	143
SAVE	216	0
SCREEN	191	174
SET	156	158
SGH	255129	255128
SKIPF	163	165
SIN	255133	255136
SOUND	160	162
STEP	169	173
STOP	145	146
STRING\$	255161	255160
STR\$	255136	255142
SUB	166	169
SOR	255155	255133
TAB	164	167
TAN	255150	255138
THEN	167	171
TIMER	255159	255150
TO	165	168
TROFF	184	169
TROH	183	168
UNLOAD	219	0
USING	205	205
USR	255131	255161
VAL	255137	255143
VWRPTR	255157	255156
VERIFY	218	0
WRITE	217	0
+	171	170
-	172	176
*	173	197
/	174	198
^	175	199
>	179	202
=	179	203
<	180	204
:	131	131

Listing 2 gives the tables a more readable and condensed form

```

10 255131-255132
11 255133-255134
12 255135-255136
13 255137-255138
14 255139-255140
15 255141-255142
16 255143-255144
17 255145-255146
18 255147-255148
19 255149-255150
20 255151-255152
21 255153-255154
22 255155-255156
23 255157-255158
24 255159-255160
25 255161-255162
26 255163-255164
27 255165-255166
28 255167-255168
29 255169-255170
30 255171-255172
31 255173-255174
32 255175-255176
33 255177-255178
34 255179-255180
35 255181-255182
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37 255185-255186
38 255187-255188
39 255189-255190
40 255191-255192
41 255193-255194
42 255195-255196
43 255197-255198
44 255199-255200
45 255201-255202
46 255203-255204
47 255205-255206
48 255207-255208
49 255209-255210
50 255211-255212
51 255213-255214
52 255215-255216
53 255217-255218
54 255219-255220
55 255221-255222
56 255223-255224
57 255225-255226
58 255227-255228
59 255229-255230
60 255231-255232
61 255233-255234
62 255235-255236
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76 255263-255264
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130 255371-255372
131 255373-255374
132 255375-255376
133 255377-255378
134 255379-255380
135 255381-255382
136 255383-255384
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597 256305-256306
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```


162	EXEC	SOUND	213	MERGE	??
163	SKIPF	AUDIO	214	RENAME	??
164	TAB	EXEC	215	RESET	??
165	TO	SKIPF	216	SAVE	??
166	SUB	DEL	217	WRITE	??
167	THEN	EDIT	218	VERIFY	??
168	HOT	TRON	219	UNLOAD	??
169	STEP	TROFF	220	CGKINE	??
170	OFF	LINE	221	BACKUP	??
171	+	PCLS	222	COPY	??
172	-	PSET	223	DSK1#	??
173	#	PRESET	224	DSK2#	??
174	/	SCREEN	225128	SGH	SGH
175	^	PCLEAR	225129	INT	INT
176	RND	COLOR	225130	POS	POS
177	OR	CIRCLE	225131	USR	POS
178	>	PRINT	225132	RND	RND
179	=	GET	225133	SIN	SCR
180	<	PUT	225134	PEEK	LOG
181	DEL	DRAW	225135	LEN	EXP
182	EDIT	PCOPY	225136	STR#	SIN
183	TRON	PHODE	225137	VAL	COS
184	TROFF	PLAY	225138	ASC	TAN
185	DEF	DLOAD	225139	CHRF	ATH
186	LET	RENUN	225140	EDF	PEEK
187	LINE	TAB	225141	JOYSTK	LEN
188	PCLS	TO	225142	LEFT#	STR#
189	PSET	SUB	225143	RIGHT#	VAL
190	PRESET	FN	225144	MID#	ASC
191	SCREEN	THEN	225145	POINT	CHRF
192	PCLEAR	NOT	225146	INKEY#	EDF
193	COLOR	STEP	225147	MEM	JOYSTK
194	CIRCLE	OFF	225148	ATH	FIX
195	PRINT	+	225149	COS	HEX#
196	GET	-	225150	TAN	LEFT#
197	PUT	#	225151	EXP	RIGHT#
198	DRAW	/	225152	FIX	MID#
199	PCOPY	^	225153	LOG	POINT
200	PHODE	RND	225154	POS	INKEY#
201	PLAY	OR	225155	SCR	MEM
202	DLOAD	>	225156	HEX#	VARPTR
203	RENUN	=	225157	VARPTR	INSTR
204	FN	<	225158	INSTR	TIMER
205	USING	USING	225159	TIMER	PROINT
206	DIR	??	225160	PROINT	STRING#
207	DRIVE	??	225161	STRING#	USR
208	FIELD	??	225162	CUN	??
209	FILES	??	225163	FREE	??
210	KILL	??	225164	LOC	??
211	LOAD	??	225165	LOF	??
212	LSRT	??	225166	MOV#	??

```

00000 #####XXXXXXXXXXXXX
00000 '### CLS@P@RT@D@G' ###
00000 #####XXXXXXXXXXXXX
00000 D@RT@Y(123);T@X(123)
00000 CLS PRINT "LOAD LOOKUP TABLE"
00000 PRINT@200;"POSITION TYPE = PRESS
Flas";PRESS;ENTER TO CONTINUE"
00000 FOR INKEY# IN "PACHQWERTYUIOPASDFGHJKL
00000 CLS PRINT "SEARCHING FOR Lookup"
00000 OPEN "1..1..LOOKUP"
00000 CLS PRINT "FOUND Lookup"
00000 FOR I=1 TO 12:PRINT I;T@X@R@I;
00000 INPUT "CL. FOR I. TO 12:NEXT I

```

```

00100 CLOSE:L: G@T@I@G I;LOC@T@I@O@N@S@D@I@G@T@O@C@O@M@P@L@E
00100 CLS PRINT "LOADING COMPLETE"
00100 ED=PEEK 25:IF ED#P@E@K(25)
00100 END:G@T@O@P@E@K
00100 PRINT-PRINT PROGRAM BEING CONVERTED
PRINT@100; START ADDRESS:;
P@E@K@25:P@E@K(25)-P@E@K(25)+4
00100 IF INTR# 62 THEN END:G@T@O@P@E@K:=-ED
00100 PRINT@200;"CURRENT ADDRESS"
00100 G@T@O@C@O@M@P@E@K
00100 Lookup For 255:LOC@T@I@O@N@S@D@I@G@T@O@C@O@M@P@E@K
00100 FOR I=1 TO 12: G@T@O@C@O@M@P@E@K
00100 "Lookup For 220:T@X@I@O@N@S@D@I@G@T@O@C@O@M@P@E@K

```

Continued
page 17


```

000000  BEGIN STOPB                                     (Listing continued)
000001  IFDC=0 THEN "HOLDING NO RETURN
000002  HOLDING CLS PRINT EXPOS IN POWER
000003  CONVERSION" STOP RETURN
000004  'with Program for conversion
000005  FOR I=0 TO 20 STEP 1: PRINT "20" + I TO 20
000006  NEXT I
000007  TR=0: C=1
000008  IF C=0 THEN GOTO 10000
000009  IF C=1 THEN GOTO 20000
000010  IF C=2 THEN GOTO 30000
000011  IF C=3 THEN GOTO 40000
000012  IF C=4 THEN GOTO 50000
000013  IF C=5 THEN GOTO 60000
000014  IF C=6 THEN GOTO 70000
000015  IF C=7 THEN GOTO 80000
000016  IF C=8 THEN GOTO 90000
000017  IF C=9 THEN GOTO 10000
000018  IF C=10 THEN GOTO 11000
000019  IF C=11 THEN GOTO 12000
000020  IF C=12 THEN GOTO 13000
000021  IF C=13 THEN GOTO 14000
000022  IF C=14 THEN GOTO 15000
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000024  IF C=16 THEN GOTO 17000
000025  IF C=17 THEN GOTO 18000
000026  IF C=18 THEN GOTO 19000
000027  IF C=19 THEN GOTO 20000
000028  IF C=20 THEN GOTO 21000
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000181  IF C=173 THEN GOTO
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Table 1

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[illegible]

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MICRODEAL
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MICRODEAL



IF YOU'RE an avid reader of classified advertisements, as I am, then you'll have spotted one from a small software house called Hermes selling an adventure with the strange title *The Trail of Arnold Blackwood*. It's good to discover more about the enigmatic Arnold; I wrote off for a copy. What came back was a straightforward but interesting advent as worth checking out and there professionally presented (in terms of the program, if not the packaging) than many other small-scale productions.

Handy addition

The adventure uses its own redrafted character set to make the screen big and more readable, though Hermes says that in order to do this it has to sacrifice a SAVE routine, which is unfortunate. Arnold accepts the usual ventriloquist input with words being recognised by a few first three letters, and an unusual oddity is that you don't need to type GET to pick up an object; the program assumes that's what you want to do unless you specify some other action.

Each place you visit has three headings which are emphasised in red ink: **STATUS**, **LOCATION**, **VISIBLE** and **DEFINITIONS**, which are self-explanatory. What isn't self-explanatory is the purpose of the adventure. You take the part of Arnold Blackwood and you're suffering from loss of memory. You start in a library on the Estate of Lord Etrebus and you know you're in some sort of mission, but what? You also know that Lord Etrebus has plenty of expensive baubles to

The first set of locations has you wandering around outside the house, trying to discover a way through the forest and back door. Searching sheds and other buildings gives you a few tools while wandering into a greenhouse has you confronted by a little (if you haven't got the few tools) sorts out the little, then you'll sneak in the greenhouse door closes behind you and as the program doesn't recognise CAST, ENG or similar words there seemed to be an alternative but to re-LOAD. Though later I discovered you could BREAK and GO TO 10, which sent you back to the opening location but with the objects you'd already accumulated still

in your possession. (Though loaded with CLONARD, the program is apparently a mix of Basic and machine code.)

You might bump into a malevolent spirit which gives you advice (along the lines of "Don't let the light go") before it's out when contacted, some of which seems to make sense when you enter the house and the adventure begins to open up. You encounter a dwarf named and Maxxon Pals, not to mention a ZX 81, and while this is far from being a total adventure it is puzzling and also includes some amusing responses from time to time. At £5.50 it is reasonably priced and a substantial item. Hermes at 10 Gower Road, Ringwood, Hampshire BH21 4DW.

More expensive at £9.95 are two titles in the Mystique Adventure series, both Chapter 8 and if you stopped The Golden Bazaar, which was author Brian Hewitt's. I did attempt at adventure writing, you can go on to only a loose-up with *Arrive at Death*, but I follow up to the follow-up with *Arrive at Death Part 2*. They follow the format of the rest of the series, having a Dragon 64 graphics version and a Dragon 32 text-only version on the same tape and making use of the great character set which makes the screen look more like a Spectrum than a Dragon.

Now when you entered the Golden Bazaar at the end of the first adventure (what do you mean you haven't managed it yet?) you thought your troubles were over. Indeed they were, for a while. I'll remember in the kingdom turned bad the moon began to fall and there was nothing but gloom and disaster everywhere. The Bazaar no longer shines its gold, but is tarnished and old, and seems to dance associated with a 'Your task is to find the source of the evil and the means of dealing with it.' You begin in the Palace of the King, where the Golden Bazaar is kept in the Throne Room. Though any attempt to do anything with it at first is doomed to disaster, as that first time to visit Part 2, as Part 2 itself has you finding what it is that you need in order to deal with the Bazaar.

As I've said before about this series, they're not to everyone's taste and while I find them enjoyably tricky there are plenty who seem to think they're unduly simple. Lucky them! What else about I have

is that everything has a purpose, even though this might not become apparent at first, and that the story. You also get to know which locations are likely to be significant, even if this isn't obvious at first. First a shovel and you can be sure you'll have to dig all over the place to unearth something useful (this happens in Part 2), and if you SEARCH everywhere and EXAMINE everything then the means to progress just has to be there.

The last descriptions are kept very brief and there would be a lot more atmosphere about the stories if there were expanded a little, but there are certainly plenty of locations to explore. In the first part you soon leave the Palace behind and start wandering round forests, down cliffs and into caves — by the time you've already discovered that the means to deal with the evil is going to be an arrow, as you're searching for the parts that you'll need.

Seek and destroy

When the second adventure begins, you are armed with a sword and everything you need in order to make the arrow, which you must destroy. Arnold, who is the source of the evil. But the only one who can help you make the arrow is Arnold, the Royal Fletcher, so first you must gather Fletcher. The terrain here is very familiar, with narrow gorges, rapid bridges, stone corridors and dark caverns, plus the inevitable old king is in there, too, and he'll deal with which to light it in hidden some where. What would we do without that old lamp?

Characters in the adventure include a sinister guard, a happy mule, an armoured knight and a hero who is the familiar figure? Yes, it's the old beggar, who do all the young beggars get to, I wonder? But I thought some of the scenes and scenes are similar to many earlier adventures, both parts of The Arrow of Death would certainly give you your money's worth, like the rest of the Mystique Adventures. Buy them all and there's adventure in your Dragon for many more months to come. ■

Back with Mike Gerrards will be looking at adventures for the Dragon. If you have an adventure you want reviewed or you need advice or have some to offer write to Mike Gerrards, Adventure Trail at Dragon User.



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Pixel problem

I HAVE encountered a problem in trying to move shapes around the hi-res screen through machine code.

Due to the byte mapped nature of the screen it would appear impossible to move any one screen location (byte) on to another location (byte) safely in any odd odd less than a byte. This byte jumping gives a jolty appearance to the movement.

Simon Lovell
Cork
Eire

IT IS simple to move graphics pixel by pixel using assembly language. If you use two shift commands. For example, to move 4, to move a byte at 000:3070 one pixel to the right you would use the following code:

```
LDX #3070
CLR
LDR
ROR
STA,X
RTS
```

Using successive LDR and ROR's it is possible to smoothly move an image byte by byte as you like.

Relocatable routine

DRAGON 5 Basic has no instructions such as RESTOREM which is very useful when managing numerous data.

Do you know of a routine to replace RESTOREM?

Giles Holor
Montgomery
Florida

THE DRAGON's restore command can only be used to reset the data pointer to the start of the program, not to any particular line. The short listing given will also included in your programs, give this facility. To use it, simply type XX=USR000 where 'xx' is the line number at which you want to



start reading data. The routine is relocatable in memory.

```
5 RESTORE TO A LINE
NUMBER
10 CLEAR000:32744
20 FOR I=0 TO 21 READ
AS: POKE 32745+I,
VAL"OFF"+AS: NEXT
30 DATA 00, 00, 27, 00,
20, 00, 10, 00, 00, 20,
00, 30, 10, 00, 30, 00,
00, 10, 00, 44
40 DEF USR00=32744
```

Confusing PUT options

AFTER playing around with the GETTING and PUTTING of graphics, I have come across a problem. I started experimenting with the other commands to PSET? (that is, AND, NOT and OR) and a problem arose when I use these commands. I started out by using OR, this should according to the manual have the effect of overlaying one drawing with another.

The result of using this is that the picture you are PUTTING goes 'weird' and the picture you are trying to overlay gets erased. None of the other commands work either. Can you solve my problem?

Richard Roylance
Newburgh
Northants

THE PUT options OR, AND, NOT do work correctly, but may seem a little confusing. Using 'OR' will logically or the image in the array with that on the screen. This has the effect of blue + yellow = red, and any other colour +

green = other colour. Using AND has the following effect: red + any colour = that colour, any colour + green = green. These two options work best if a red image is held in the array and is PUT on to a green background.

The NOT option takes no notice of what's actually in the array, it simply inverts a section of the screen within the given co-ordinates (that is, green becomes red, yellow becomes blue and vice versa).

Basic stack

WHAT DOES the FOR/NEXT and GOSUB/RETURN do towards the Basic stack? Is there a way to PUSH/PULL on it?

Clay Nelson
Gaines
Delaware

EACH TIME a FOR/NEXT loop is used, or a GOSUB is encountered, addresses are pushed on to the Basic stack. When a NEXT or RETURN is used, an address is pulled from the stack. As the same stack is used for both loops and subroutines you cannot do the following:

```
10 FOR I = 1 TO 10
20 GOSUB 50
30 GOTO 1
40 NEXT I
```

This stack is completely separate from the BASIC stack and should not be confused with them, the Basic stack cannot be

directly used by the programmer.

Opcode error

HAVING recently started machine code, I am desperately trying to use the high resolution subroutines (for example, GET, PUT) in machine code. The method I use is to fool the computer in to running a Basic line during a machine code program, but with little success. The following routine should set a point at (100,100):

```
LDX #50
PUSH X
LHAX @PSET,PCB
LDA X
ANDCC #0FE
JBR 42735 PSET
routine location
```

```
PULL X
STX #50
RTS
@PSET PCB 170:40:40:40:40:40:44:49:40:40:41:0
RTS
10 PWDOS 4,1 PCLS
SCREEN 1,1 GXC
AMEST
20 GOTO 20
```

The problem arises when writing the @PSET PCB line as the cursor switches the end of the line and on writing the remaining numbers on the next line, an invalid opcode error is reported during assembly. Can you be of any help?

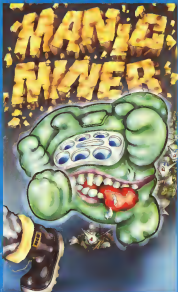
M Jayne-Smith
Northwich
Cheshire

THE PROBLEM is as you suspected in the line @PSET. It is not necessary to have the hexadecimal token value (170) in the line, a correct version of this program would read:

```
LDX #100
PUSH X
LHAX @PSET,PCB
LDA X
STX #100
JBR 42735
PULL X
STX #100
RTS
@PSET 100:40:40:40:40:40:44:49:40:40:41:0
```



There's Billy, who's prospecting down twisting, zig-zagging veins, an ancient, long forgotten subterranean. The further he goes in, he finds evidence of a lost civilization far superior to our own, which must somewhere in this deep hole be Earth's clue to supply the industrial requirements for their advanced technology. After centuries of peace and prosperity, the civilization was torn apart by war, and layed into a long dark age, abandoning their technology and knowledge. Finally, however, it might be that the solar winds are now working, and through centuries, as we they had so carefully accumulated a large repository of valuable metals and minerals, and there Billy realizes that he can use the opportunity to make his fortune by finding the much-ignored store. In order to come to the past (remember, you must collect all the floating coins in the mine while avoiding certain like Poisonous Plants and Spiders and Traps) and world of old, Mania Mining includes, Mines may have all the traps you can make the perfect mine will only be finished. The game ends when you have found "gold" or killed twenty three hours.



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**History of the May
Day with the Women
Movement, 1988**

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Figure 1

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1. **THEORY** – 100% (100 questions)
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Competition Corner

Answers to Competition Corner
Dragon Users, 12/13 Little Newport
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PRIZE

BEAU JOLLY is offering his readers a chance to win one of his Dragon "valuables". The packs contain five games from Morgan Gwynne's range of titles. They are: Pado: 8C, 8E, Cosmos, Crusier, Leggit and Arcadia.

RULES

TO WIN a valuable you must show both the answer to the competition and how to solve it with the use of a Basic program developed on your Dragon. Please to not send in a cassette containing the answer. As a tie breaker complete the following sentence in 15 words or less: "I want to own Beau Jolly's Dragon notebook because..."

Your entry must arrive at Dragon User by the last working day of December. The winners and the solution to the quiz will be published in our March issue. Entries will not be acknowledged and we cannot enter into correspondence on the result.

SEPTEMBER WINNER

THE WINNER of the September competition and recipient of £250 of software from Monodisk is David Richardson of Gosport in Surrey. David correctly stated that the correct solution was 84648. This is because 84648 multiplies by itself to 7165526404. This is a ten-digit number in which each of the digits 0-123456789 occurs once and only once.

RINGWORLD WINNERS

THE 50 winners in Windsor's Ringworld competition each receive a copy of its latest adventure, the Return of the Ring. They are: Michael Barrow, Plymouth; A. Kirk, Cheshire; M. Jones, Kent; Simon Green, York; & West, Essex; R. Langford, Walsby; T. Smith, Suffolk; P. P. Richardson, Sussex; R. Hamilton, Leicester; P. Moore, Warwickshire; L. Barlow, Cheshire; J. Parker, Sussex; M. Paine, Leeds; A. K. Jones, Cleveland; Southampton; R. K. H. Jones, Essex; P. Begg, Somerset; G. Edwards, Paderborn; A. Stewart, Kent; J. Palmer, Hampshire; D. Spiller, South Wales; G. Hunter, Southampton; G. Thomas, Middlesex; R. Davies, Kent; R. Gerting, Kent; R. Arnold, Leeds; A. Cook, Glasgow; M. Daniel, Herts; S. Mallick,

Magic cards

Beau Jolly provides the prizes to Gordon Lee's four — card game



LAST CHRISTMAS on this page we took a look at the computer versions of a classic of informal party games, so this year we look at another title coming with the computerised magic trick. Don't worry, we won't be using a Dragon in this!

Before starting the program below should be loaded in to your computer. Then hand out an ordinary pack of cards to be shuffled and invite each of your spectators to select a card. Assure them that the Dragon will attempt to identify the cards selected and invite each person in turn to sit at the computer. The computer will display the names of a number of cards and will ask if the spectator's card is listed.

Selections

If nothing (using keys "Y" or "N") is further five selections of cards are displayed. After the final reply has been made the name of the card selected will be announced on the screen display.

This month's competition is also related to playing cards. The other day the famous cartoon conversation took place between the academic/mathematician Professor Cota Hiss and his equally educated son.

Professor Hiss: "I have in my hand four cards taken from a standard deck of playing cards. They are: a king, a diamond, a heart and a spade. I want to tell the face value of the card to the face value of the diamond and then add the heart to the spade and multiply these two totals together, the product is equal to Bernam Byte's age next birthday!"

His Junior: "There are many combinations of cards that will produce that total. Professor Hiss: "Quite correct, in fact the number of different combinations of four cards taken from a standard pack that will equal that total is in fact a prime number!"

His Junior: "I still need more information."

Professor Hiss: "Well, two cards have the same value but neither is the club — what is a hint?"

His Junior: "Now I know all four cards. (Note that Jack = 11, Queen = 12 and King = 13 — and it should be assumed that sufficient time elapsed between each statement to allow His Junior to make the necessary calculations.)

What were the four cards (and how old is Bernam Byte)?



St. George now has two choices!

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